DOCUMENT RESUME

ED 108 228 95 CS 202 113

AUTHOR Russell, Paula
TITLE Morphology and English Spelling.
INSTITUTION Southwest Regional Laboratory for Educational Research and Development, Los Alamitos, Calif.
SPONS AGENCY Office of Education (DHEW), Washington, D.C.
REPORT NO SWRL-TN-2-72-54
PUB DATE Nov 72
NOTE 25p.

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS Morphemes; *Morphology (Languages); Phoneme Grapheme Correspondence; *Spelling
IDENTIFIERS Spelling Program

ABSTRACT

Although approximately one-half of the English lexicon can be spelled according to phoneme-grapheme correspondences, many words in the remaining half of the lexicon can also be spelled systematically on the basis of their morphemic properties rather than on the bases of their pronunciation. This paper discusses the bases for assuming that English orthography is organized morphologically as well as phonologically and examines a number of spelling problems which can be solved on the basis of morphemic information. A list of references is included. (Author/JM)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED103228

SWRL SOUTHWEST REGIONAL LABORATORY
TECHNICAL NOTE

DATE: November 20, 1972

NO: TN 2-72-54

TITLE: MORPHOLOGY AND ENGLISH SPELLING

AUTHOR: Paula Russell

ABSTRACT

The literature indicates that approximately one-half of the English lexicon can be spelled according to phoneme-grapheme correspondences. However, many words in the remaining half of the lexicon can also be spelled systematically on the basis of their morphemic properties rather than on the bases of their pronunciations.

The bases for assuming that English orthography is organized morphologically as well as phonologically are discussed, and a number of spelling problems which can be solved on the basis of morphemic information are examined.

CS202 163

This document is intended for internal staff distribution and use. Permission to reprint or quote from this working document, wholly or in part, should be obtained from SWRL, 4665 Lampson Avenue, Los Alamitos, California 90720

MORPHOLOGY AND ENGLISH SPELLING

Paula Russell

INTRODUCTION

The assumption that English orthography is a phonologically based system (Hanna, Hanna, Hodges, & Rudorf, 1966) has provided the framework for the SWRL Spelling Program (Cronnell, 1972). While it is true that phoneme-grapheme correspondences can accurately account for spellings of most one-syllable and many two-syllable words in the language, these correspondences cannot correctly predict spellings of large numbers of derived words. For example, sound-to-letter relationships do not account for the spellings of /š/ in partial, racial, and marshal. While such spellings violate the alphabetic principle, they are not necessarily chaotic.

As long as two decades ago, one scholar suggested that a spelling which is asystematic in representing the phonemes comprising a word may be quite systematic in representing the morphemes comprising that word (Vachek, 1945). Unfortunately, the relationship between morphology and English spelling gained little attention until the publication of The Sound Pattern of English (Chomsky and Halle, 1968). In analyzing the English sound system, Chomsky and Halle asserted that English orthography does not reflect the sounds produced when words are actually said (their "phonetic" representations) but rather it reflects the underlying forms of the meaningful units making up those words (their "lexical" representations). This assertion may be better explained by illustration.

In considering the words part, partial, race, racial, mart, and marshal, the mature native speaker of English is aware of the following facts:

1. That /part/ in part and /parš/ in partial are a single meaning unit, despite a difference in pronunciation.
2. That /res/ in race and /reš/ in racial are a single meaning unit despite a difference in pronunciation.
3. That /mart/ in mart and /marš/ in marshal are two different meaning units, despite the fact that the pronunciation difference is the same as that in part and partial.

Note that the spellings of consonants in part, race, mart, and marshal, all of which are single morphemes, are based on phoneme-grapheme correspondences. Spellings of consonants in partial and racial, each of which contains two morphemes, are reflective of the speaker's knowledge about the make-up of the two words. In order to account for /š/ in racial, partial, and marshal in terms of phoneme-grapheme correspondences alone, three conflicting rules must be created: /š/→sh, /š/→t, and /š/→c.

A possible conclusion to be drawn from examples like these is that the spelling of a morpheme is reflective of only one of its pronunciations (e.g., part and race) and that the spelling of a morpheme is always the same regardless of how its pronunciation changes (e.g., partial and racial). While this assumption is valid for a large number of English morphemes, it is not applicable in the words below (morphemes under consideration are underlined):

prescribe	prescription
receive	reception
conclude	conclusion

Another factor must be taken into consideration. According to Chomsky and Halle, the sound variations of a morpheme need not be reflected in the orthography if they are predictable in terms of regular sound patterns of the language. If variation is not predictable, it is noted in the spelling. For example, the word atomicity (/ˋætəmˊIsəti/) should be pronounceable by a mature speaker and reader of English despite the fact that it may be unfamiliar. Note that atomic has a final /k/, stress on the second syllable, and the vowel sequence /ə...a...ɪ/. When -ity is added, /k/ is replaced by /s/, stress is shifted to the third syllable, and the vowel sequence is changed to /æ...ə...I.../. The fact that a mature speaker accounts for all of these changes when reading the word atomicity aloud, even if he has never before seen or heard the word, demonstrates that all of the changes are regular in the language and that indicating these changes in the orthography would be superfluous. On the other hand, one would never pronounce prescribive as /prɪˊskrIptɪv/; the alternation of /skrayb/ with /skrIpt/ in prescribe-prescriptive, describe-descriptive, etc. is not productive and is, therefore, indicated graphically.

Thus, the English spelling system is organized according to the following principles:

1. A morpheme is spelled according to phoneme-grapheme correspondences in one of its occurrences, usually its free form if it has o[illegible] (e.g., part, race, and mart).

2. If in some environment the morpheme has a different pronunciation which is predictable in terms of the regular sound pattern of the language, the spelling of the morpheme does not reflect that difference (e.g., partial and racial).
3. If in some environment the morpheme has a different pronunciation which is not predictable in terms of the regular sound pattern of the language, the spelling of the morpheme does reflect that difference (e.g., prescribe-prescriptive, receive-reception, etc.).

Since the publication of The Sound Pattern of English, this view of English spelling has gained wide-spread acceptance--see MacDonald (1969), Chomsky (1970), Venezky (1970), Brengelman (1970), and Kriedler (1971). The question under consideration here is the extent to which morphological information is useful to the child learning to spell. This kind of information may not be only useful but essential in the systematic spelling of large numbers of affixed words which cannot be spelled systematically in terms of sound-letter correspondences alone. If children are to acquire transfer skill in spelling, they must become aware of at least the most general and productive regularities of the spelling system.

In addition, the orthography reflects the morphological make-up of English words, often more obviously than does speech (because the spelling of a morpheme is fairly uniform despite pronunciation changes). For example, the letter sequence alleg in allege, allegience, and allegation clearly indicates that all of these words have a common base; the different pronunciations of alleg in the three words (/əlɛ́j/,

/əlíǰ/, and /ǽləg/, respectively), however, obscures the relationship. If one cannot detect the bases of affixed words, he will have no notion of regular processes of vowel, consonant, and stress alternation which often accompany affixation (as in atomicity). Robinson (1967) has pointed out that in the development of linguistic competence, rules governing affixation processes are among the last to be learned and may not be learned at all. Both Chomsky (1970) and MacDonald (1969) have pointed out that systematic learning of English spelling, because it preserves the identity of morphemes, may prove a valuable aid in the development of general linguistic competence. Therefore, it may be that a child's knowledge about the make-up of words can help him in spelling and that exposing a child to the morphological nature of spelling may help him to know more about words.

A first step in designing a spelling program that focuses on the morphological base of English orthography is to delineate those morpheme combining processes which give information about spelling not supplied systematically by phoneme-grapheme correspondences. Following is a description of some of the processes which may prove useful for spellers.

PREFIXATION

Prefixation in English is a relatively simple process of combining sound (or letter) sequences. A prefix generally does not cause any change in the pronunciation of the base to which it is attached. Therefore, many prefixed words can be spelled according to sound-letter correspondences. Where these correspondences are not accurate in

predicting spellings, however, morphological information may be of value. Several such situations are considered below.

UNSTRESSED VOWELS

Prefixes are rarely stressed and therefore have unstressed vowels, which do not have predictable spellings. Because a given prefix is always spelled with the same vowel letter, recognition of the prefix in a derived word can eliminate the necessity of memorizing a prefix vowel spelling for each of its occurrences. For example, if one is able to recognize and spell dis-, un-, and re-, he is saved the task of memorizing spellings of unstressed vowels in scores of words containing these morphemes. Correct spelling of a prefix, then, is largely dependent on recognizing it. Where its meaning is obvious, recognition should be relatively simple. Where prefix meaning is obscure, recognition may be much more difficult.

The spelling of unstressed vowels in some prefixes can be determined in another way. In English, prefixed two syllable nouns are often stressed on the first syllable and verbs of similar composition are stressed on the second. Noun-verb pairs may be useful in determining prefix spellings--/i/ in récess vs. /ɪ/ in recéss, /ɛ/ in désert vs. /ɪ/ in desért, /ə/ in cónduct vs. /ə/ in conduct, etc. In each of the pairs the vowel under stress has a phonologically predictable spelling, and the parallel unstressed vowel can be spelled by analogy.

DOUBLE CONSONANTS AND UNUSUAL CONSONANT SEQUENCES

Because neither consonant doubling nor clustering at morpheme boundaries is predictable in terms of phoneme-grapheme correspondences,

morphological analysis must be relied upon. In the examples below, sequences under consideration are underlined, and likely spellings of these sequences which phoneme-grapheme correspondences would provide are given in parentheses.

misplace	(sp)	misspell	(sp)
resolve	(s)	dissolve	(s)
mistake	(st)	misstate	(st)
unaided	(n)	unnatural	(n)
overate	(r)	overrate	(r)
outage	(t)	outtalk	(t)
reshape	(sh)	misshape	(sh)
exist	(x)	exhibit	(x)

Spelling the above words is like spelling compounds--each morpheme must be spelled independently. For example, the sound-to-letter rule that /kw/→qu is extremely regular; however, /kw/ in backward is not spelled qu but ckw. This is of course because back and ward are spelled independently. Similarly mis- plus shape is spelled misshape, and so on.

Accurate spelling of consonants at prefix-base boundaries (or at word boundaries within compound words) depends upon recognition of the prefix and the base involved (or of the two words making up the compound). This obviously depends upon the overtness of the meaning of each part. In the examples listed above, certainly over-, out-, talk, ate, shape, spell, etc. are easily recognizable. Mis-, un-, re-, solve, take, and hibit would probably be recognizable if several combinations of these morphemes were presented to the learner and their component parts pointed out.

A few prefixes not mentioned above which are responsible for creating a great many unexpected consonant doublings are not easily recognizable.

The final consonants of con-, sub-, and ad- have alternant pronunciations and spellings based on the consonants following them. This assimilation process, in conjunction with the sometimes vague meanings of these prefixes, makes recognition extremely difficult. Underlined spellings in the words below are predictable if the morphemes involved are known.

con-	sub-	ad-
connect	surrender	address
comment	supply	affect
correct		approve
collect		arrive
		attribute

Because the identity of these prefixes (especially ad-) have become obscure in modern English, it may be futile to attempt to predict spellings of words like those above in terms of morphemes. (Fortunately, sub- and con- rarely precede bases beginning with a vowel. Therefore, the sound sequences /səCV.../ and /kəCV.../ are almost always spelled suCCV... and coCCV....)

CONSONANT ALTERNATION

Those who ascribe to the notion that an alphabetic writing system is superior to any other sort of othography have long decried the fact that /s/ in English can be spelled by either c or s. (While /s/ is spelled s before a, o, and u, it may be represented by either graph before i, e, and y). There is actually some justification for this ambiguity, as exemplified by the following sets of words:

cite	recite	sign	resign
ceed	receed	sent	resent

Note that c in cite, recite, ceed and recede represent /s/ while s represents /z/ in resign and resent and /s/ in sign and sent. Where /s/ does not become voiced between vowels, and c spelling is used; where voicing does occur s is used.

HOMOPHONOUS PREFIXES

Because the development of transfer skills in spelling prefixed words depends largely on morpheme recognition, homophonous or nearly homophonous prefixes hinder that development. While there are few such sets of prefixes in the language, those that do exist are widespread enough to cause serious difficulty unless they are accurately differentiated. One of these sets, a- and ad-, cause a great deal of spelling ambiguity--e.g., abandon (a- + bandon) vs. abbreviate (ad- + breviate), across (a- + cross) vs. accord (ad- + cord), apart (a- + part) vs. appeal (ad- + peal), and the like. Differentiation of this pair of prefixes is probably impossible, because meanings of the prefixes have been lost.

Other sets may be more amenable to differentiation on the basis of meaning. Dis-, de-, and di- are often troublesome for spellers. Of the three, di- is least frequent and probably presents a problem to young spellers only in divide, which can be learned as a sight word. De- can be mistaken for dis- only when the base following de- begins with s. However, dis- can be mistaken for de- (de- + s...) in any environment. Spellers should become aware that disagree is composed of dis- + agree rather than de- + sagree or, less obviously, that disease is made up of dis- + ease rather than de- + sease, and the like. Focus on the base can help to solve prefix confusion.

In- and en- may be confused but should be easily differentiated. In- means either "not" or "in," whereas en- adds the denotation "cause to be" to bases (e.g., "inability" vs. "enable"). Pre- and per- are homophones for some speakers (pre- is pronounced /pər/ more often than per- is pronounced /prV/). The "before" meaning of pre- might be stressed to promote accurate spelling.

SUFFIXATION

Suffixation processes are far more complex than are those associated with prefixes. While some suffixes are simply added compound-fashion to base morphemes, suffixation can involve a change in pronunciation of one or more vowels of a base, change in stress placement, and/or change in the pronunciation of the final consonant of a base. Because these pronunciation changes are often not reflected in spelling, morphological analysis is often the only means by which one can accurately predict spellings of suffixed words. Considered below are several characteristics of suffixation processes which may be useful in determining spellings which are unpredictable in terms of sound-to-letter correspondences.

CONSONANT ALTERNATION

Addition of a suffix beginning with i or u to a base ending in s, t, d, or c may cause a change in pronunciation in the final consonant of the base. While such a change may be extreme--such as /t/ becoming /š/, it is not indicated in the orthography as long as it is a regularly occurring alternation in the language. A number of regular consonant alternations and examples of each are listed below (spellings of the consonants under consideration are underlined):

1	2
/k/	/s/
electric	electricity
elastic	elasticity
critic	criticism
physics	physicist
medic	medicine
/s/	/š/
sense	sensual
discuss	discussion
race	racial
space	spacious (spatial is an exception)
press	pressure
/t/	/š/
locate	location
emote	emotion
part	partial
infect	infectious
/s/	/ž/
decisive	decision
/z/	/ž/
visible	visual
please	pleasure
enclose	enclosure
/t/	/č/
quest	question
moist	moisture
contempt	contemptuous
habit	habitual
/d/	/ǰ/
grade	gradual
ardor	arduous
accord	cordial

Actually, these examples describe two kinds of consonant alternation processes. The /k/-/s/ alternation is a matter of simple substitution. Note that the graphic distribution of the letter c is ideally suited to

this process. The other alternations are actually a merging process of the final consonant of the base with initial /y/ of the suffix. This assimilation may hide the identity of both morphemes. For example, when /yən/ (as in companion) is suffixed to emote, a base ending in /t/, the result is /ɨmóšən/--/t/ and /y/ combine producing /š/. The orthography, however, retains the underlying final consonant of the base, spelled t, and the underlying /y/ beginning the suffix, spelled i.

Spelling a word in column 2, then, involves determining the base (as given in column 1), spelling it according to phoneme-grapheme correspondences, determining the suffix, spelling it according to procedures described on page 15, and combining the two. If one were to attempt to spell words in column 2 on a phoneme-grapheme basis alone, the best he could do would be to choose randomly from a number of ambiguous correspondences (e.g., /š/→sh, s, or t).

Only one word in column 2 cannot be spelled according to its base form. The base of decision is not decise but decide. Recall that when sound changes are unpredictable, like those in columns 3 and 4 below, they are reflected in spelling:

3	4	5
/d/	/s/	/ž/
decide explode	decisive explosive	decision explosion
/d/	/s/	/š/
recede	recessive	recession
/v/	/pt/	/pš/
receive	reception	reception
/s/	/kt/	/kš/
deduce	deductive	deduction
/t/	/s/	/š/
permit	permissive	permission

The consonant alternations in columns 3 and 4 are not regular in the sound system of English; therefore, spelling makes note of those changes. Consonant alternations in columns 4 and 5, however, are regular; no change in spelling occurs. Note that all words in column 5 are -ion words. The spelling of a base before -ion is not its unsuffixed form (as in column 3) but the shape it assumes before -ive (as in column 4), which is predictable in terms of sound-to-letter correspondences. The suffix -ion, in this way puts an additional burden on the speller. (Actually, reference to the base plus -ive need only be made when the -ion word ends in the sequence /V(C)šən/, for the following phoneme-grapheme correspondences are quite reliable: /...Vžən/→...Vsion and /...V̄šən/→...Vtion.

VOWEL AND STRESS ALTERNATION

Adding a suffix to a base can sometimes cause a change in stress in that base and a difference in pronunciation of its vowels. While

this kind of alternation is extremely important in reading, its chief value in spelling instruction is that it can aid the speller in determining spellings of unstressed vowels. In the examples below, stress placement is indicated, and unstressed vowel spellings in one column which can be predicted by the spelling of a corresponding stressed vowel in the other column are underlined.

átom	atómic
hístory	históric
pátriot	patriótic
óffice	offícial
hábit	habítual
divíde	indivídual
régular	regularity
májor	majority
móral	morality
sólemn	solemnity
stúpid	stupídity
définite	definítion
combíne	combinátion
tránsport	transportátion
consóle	consolátion
contríbute	contribútion

Relating pairs of suffixed and unsuffixed words or pairs of differently suffixed words in order to determine otherwise unpredictable spellings has been termed "affix-aided" spelling by Venezky (1970). Affix-aided spelling can sometimes help a speller to remember silent consonants--e.g., sign-signature, bomb-bombard, dumb-Dumbo, exhibit-inhibit, muscle-muscular, condemn-condemnation, and the like.

UNEXPECTED LETTER SEQUENCES

Suffixation processes exemplified above indicate that spelling suffixed words (except for -ion words) involves independent deter-

mination of the base and its spelling and of the suffix and its spelling. While this is generally true, two other factors are involved. First, if a common (often inflectional) suffix is added to a base with a stressed final syllable containing a short vowel, the final consonant is doubled. Doubling is necessary to indicate vowel length before -ing, -ed, -est, -er, -y, etc. Numerous pairs like matting-mating, latter-later, and the like, make this device necessary. Most derivational suffixes do not demand consonant doubling--there are few contrasting pairs like completion-discretion. The second factor is, of course, that if a base ends in a consonant followed by e, the e is dropped when a suffix beginning with a vowel is added. This is true whether the suffix is common or rare, inflectional or derivational. However, final silent e is retained in a few suffixed words. Because c and g before a, o, and u spell /k/ and /g/, respectively, words like changeable, chargeable, traceable, courageous, etc., retain the e.

HOMOPHONIC SEGMENTS AT THE ENDS OF WORDS

Spelling suffixes (as well as prefixes) is often similar to spelling function words. Both often have shortened spellings (e.g., -ful rather than -full, -ity rather than -itty, if rather than iff, etc.) or spellings which in other ways violate usual sound-letter patterns operating within morphemes. Therefore, spelling suffixes, like spelling many function words, generally involves lexical-visual associations. In addition, differentiating between homophonic suffixes is as important as differentiating between homophonic function words like there, their, and they're.

Homophonic suffixes and suffixes which sound like common word endings are more numerous than homophonic prefixes. Generally, however, the meanings of suffixes are easy to determine. When this is true, suffix spellings need not be relearned for each of their occurrences. For example, if one knows that -est is a superlative adjective ending and that -ist is a noun ending (although perhaps not in those terms), spelling hardest with an e and artist with an i should pose no problem. The suffixes -ous and -ess also have obvious and very different meanings.

Other pairs of suffixes are only sometimes homophonous. The suffixes -ion and -en sound alike in nation and freshen but different in champion and dampen. In any case, a grammatical difference is apparent--one is a noun ending and the other is verb ending. Similarly, -ure and -er sound alike in picture and pitcher but different in failure and jailer. While -ure is a noun suffix, -er may be either an agentive noun ending, a comparative adjective ending, or a non-suffix word ending (as in hammer or butter). In the latter case, meaning differentiation is not always obvious.

Identification of -er and -or and of -ate and -ite is more difficult. Affix-aided spelling can aid in determining -or (*májor*-*majórity*, *áuthor*-*authórity*, *éditor*-*editórial*, etc.). The adjective ending -ate is homophonous with -ite, also an adjective ending. The spelling of -ite can sometimes be determined with the help of stress alternation, as in definite and definition. Adjectives ending in -ate (/ət/) can sometimes be spelled with the help of corresponding verbs ending in -ate (/et/); for example, /ɑ́ltərnət/ and /ɑ́ltərnèt/ are both spelled alternate.

A few homophonous English suffixes are not amenable to systematic differentiation. They include the pairs -ance and -ence (as well as the corresponding -ant and -ent), -ible and -able, and -ize and -ise. In order to correctly spell these suffixes, one must memorize which words contain which or consult a dictionary to find correct spellings. Economical dictionary use is facilitated by knowing alternative spellings for each suffix. For example, if one knows that /əns/ ending a multisyllabic word is spelled either ence or ance, he need not waste time looking for other spellings in the dictionary--the same sound sequence in a base might also be spelled ense (as in tense) or anse (as in expanse).

Suffixes which are homophonic with common word endings pose no problem if the morphemes involved are recognized. For example, /od/ is spelled either ode and oad when morpheme final (as in mode and toad), but the same sound sequence is spelled owed when /o/ ends one morpheme and /d/ is the past tense morpheme (as in mowed and towed). Similarly, past, lapse, rose, freeze, and tease each contain a single morpheme; passed, laps, rows, frees, and teas, on the other hand, contain two morphemes each. Phoneme-grapheme correspondences do not operate across morpheme boundaries; the spelling system is predicated on the assumption that speakers are aware of those boundaries. In the examples above boundaries are easily recognizable. Other homophonic sequences, like the base ending /əl/ as in tickle versus the adjective morpheme /əl/ as in topical, may require more attention.

CONSIDERATIONS FOR THE DESIGN OF A SPELLING PROGRAM

A number of factors must be considered in designing a spelling program which will enable learners to benefit maximally from morphemic principles of English orthography. The difficulty and productivity of principles as well as the usefulness of exemplars are critieria to be considered in selecting and sequencing morpheme-grapheme relationships for instruction.

Difficulty may be determined by a number of factors. According to Robinson (1967), a complex, though perhaps quite regular and productive, suffixation process involving stress change, vowel alternation and/or consonant alternation is more difficult to master than one involving mere combining of base and suffix. While Robinson's study is not directly concerned with spelling, it stands to reason that if few children are aware of complex morphemic processes they certainly cannot spell on the basis of those processes. In addition, if children are aware of sound-letter correspondences, the more that the spelling of a derived word deviates from those correspondences, the more difficult the spelling will be. Generally, however, the more a spelling deviates from the phonological basis of spelling, the greater the importance of morphological considerations becomes. It may be that morpheme-based spelling instruction can profitably begin with simple combining processes and proceed to more complex ones.

Difficulty in learning to recognize and spell morphemes in various combinations also is dependent upon the meaning of the morphemes involved.

Presumably, spelling unneeded with two n's is easier than spelling innate with two n's, despite the fact that both are spelled according to the same principle. The meaning of needed is more obvious than is the meaning of nate.

In addition, difficulty must be weighed against the productivity of a principle. A morphemic spelling process involving complex operations may be worthwhile if it has numerous useful exemplars which would be highly subject to misspelling without morphemic information. On the other hand, a relatively simple process may be worthless if it is applicable to only a very few uncommon words.

The criteria of difficulty and usefulness sometimes conflict. Demonstration by example of a very productive morphemic regularity may be severly hampered by the restriction that all words included in the demonstration be present in the learner's vocabulary. In fact, because of morphemic regularities, presentation of new words in conjunction with known words undergoing the same process, may be a considerable aid in vocabulary acquisition and in the development of abstract notions about English spelling and the English language in general. However, an unfamiliar word may hamper the learner's mastery of a regularity just because it imposes an additional learning task. Another disadvantage of the use of unfamiliar words is that they may occupy places in lessons of words more necessary to the learner's writing vocabulary. The relative importance of usefulness of an item in terms of the learner's vocabulary and usefulness of an item in terms of the learner's linguistic and spelling competence needs further study.

One solution may be to begin lesson design with a lexicon of words known and used by the learners and to arrange those words in order to focus on morphological processes that will be an aid in spelling, sequencing simple processes before complex processes, if possible. If additional exemplars are needed for a given process, these may be included in the spelling unit but not necessarily as a list words. Also, students may be encouraged to coin new exemplars using morphemes they know.

Once a set of morphemic principles has been selected for spelling instruction and sequenced on the basis of usefulness, productivity, and difficulty, formats condusive to optimal learning must be set up. An affix-oriented word grouping may be helpful in identifying an affix which has alternant pronunciations (e.g., /yər/ in failure vs. /ər/ in picture) or in emphasizing the separate identities of homophonous affixes (e.g., -ion as a noun ending vs. -en as a verb ending). If the identity of a base is more apparent than is the identity of an affix, affix-oriented grouping may aid in identifying that affix (e.g., misplace, misuse, misspell, etc.).

Base-oriented groupings demonstrate word building and may aid in defining unfamiliar words (e.g., commune, community, communion, communist, communism, communicate, communication, etc.). This kind of arrangement can also be of help in recognizing altered bases (e.g., press, pressure, impression) and in spelling unstressed vowels (e.g., courage, courageous).

A process-oriented word grouping may be of value in both identifying bases and suffixes as well as focusing on regular alternations signaled by specific suffixes (e.g., explode, explosive, explosion, receive,

receptive, reception, create, creative, creation, impress, impressive, impression, etc.).

The relative value of each of these groupings ultimately depends upon how effective they are in enabling students to internalize and transfer morphemically based spelling principles. Because the morphemic approach to English spelling is relatively new and its applications unresearched in actual classrooms, testing will have to determine how much and what kinds of morphological information children actually need, and experimentation will have to determine the optimal means of presenting that information.

REFERENCES

Brengelman, F. Generative phonology and the teaching of spelling. English Journal, 1970, 59, 1113-1118.

Chomsky, C. Reading, writing, and phonology. Harvard Educational Review, 1970, 40, 287-309.

Chomsky, N., & Halle, M. The sound pattern of English. New York: Harper & Row, 1968.

Cronnell, B. Architecture for the SWRL K-3 spelling program. Technical Note No. TN-2-72-24, 1972, Southwest Regional Laboratory, Los Alamitos, California.

Halle, M. Some thoughts on spelling. In Goodman, K.S., & Fleming, J.T. (Eds.), Psycholinguistics and the teaching of reading. Newark, Delaware: IRA, 1969.

Hanna, P.R., Hanna, J.S., Hodges, R.E., & Rudorf, E.H. Phoneme-grapheme correspondences as cues to spelling improvement. Washington, D.C.: U.S. Government Printing Office, 1966.

Kriedler, C.W. Teaching English spelling and pronunciation, 1971. ERIC ED 052 656.

MacDonald, J.W. Review of N. Chomsky & M. Halle, The sound pattern of English. Harvard Educational Review, 1969, 39, 180-185.

Robinson, J. The development of certain pronunciation skills in the case of suffixed words. Unpublished doctoral dissertation, Harvard University, 1960.

Vachek, J. Some remarks on writing and phonetic transcription. Acta Linguistica, 1945-1949, 5, 86-93.

Venezky, R.L. The structure of English orthography. The Hague: Mouton, 1970.

DISTRIBUTION LIST

5 - Directors

10 - Library

1 - Linda Lester

4 - 208 Staff

2 - 304 Staff

5 - Design CRC Heads

1 - Moncrief

1 - Rudegeair

1 - Rundle

2 - Russell